REMARKS

Claims 65-97 remain in this application. Claims 30-35, 37-54, 56-58, and 60-64 have been cancelled without prejudice to their subsequent reinstatement. Claims 65-97 have been added. The Applicant respectfully requests reconsideration of this application in view of the above amendments and the following remarks.

The Objection to the Specification

The Examiner has objected to the amendment filed July 16, 2004 under 35 U.S.C. 132 because the amendment allegedly introduces new matter into the disclosure.

Firstly, the Examiner has objected to the phrase "*a second compartment coupled to the first compartment*" as previously recited in claims 30 and 35. Applicant respectfully traverses this objection. The original specification at page 3, paragraph [0012] clearly provides that "*As used herein, two or more components are "operably coupled" when there are one or more connections between the components that allow or facilitate their functional interaction*". The original specification further makes it clear that the first compartment and the second compartment are thermally connected one with the other to function and interact with one another by exchanging heat. See e.g., paragraph [0008], and paragraph [0040], to name just a few examples. **Figure 1** further shows exemplary connections between the first compartment and the second compartment, according to one embodiment of the invention. The original specification further points out that in some embodiments of the invention, heat transfer may be facilitated by incorporation of heat transfer mechanisms, such as radiative fins, liquid filled tubes or a heat conductive material such as aluminum or copper. See e.g., paragraph [0031]. Accordingly, at least in some embodiments of the invention, there may be both thermal and physical connections between the compartments that allow or

facilitate their functional interaction of exchanging heat. Thus, the original specification clearly provides support for the second compartment being coupled to the first compartment, and the objection should be withdrawn.

Secondly, the Examiner has objected to the phrase "*to transfer net heat*" as previously recited in claims 30 and 58. The Examiner has stated that the specification appears to be leading into the teaching of having a thermally neutral system and/or a neglectable release of heat (see third paragraph on page 3 of Office Action). Applicant respectfully traverses this objection. The specification discloses that the hydrogen storage system 100 overall may be thermally neutral so that the net release of heat 180 by the hydrogen storage system 100 is low. That is, the combination of both the first compartment and the second compartment may be thermally neutral. There is no requirement that either compartment be thermally neutral or exchange a negligible amount of heat. In fact, the specification clearly discloses that the compartments may exchange a non-negligible amount of heat. Figure 1 shows a net transfer of heat 150. As further discussed in paragraph [0040], "*As a result of exothermic hydrogen generation in the second compartment 130, heat is produced and is transferred to the first compartment 110. This transfer of heat 150 results in the release of hydrogen from the metal hydride 120, which requires input of heat in order to produce hydrogen*". Thus, the specification as originally filed clearly provides support for the second compartment transferring net heat or a net amount of heat to the first compartment. The objection should be withdrawn.

35 U.S.C. §112 Rejection

The Examiner has rejected claims 30, 34-35, 37-43, 56-58 and 60-64 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. These claims have been cancelled. Applicant respectfully submits that the

present claims comply with all requirements of 35 U.S.C. §112, first paragraph. The limitations of the claims are supported by the specification as originally filed. The discussion above is pertinent to this point. The meaning of the phrase the second compartment transferring a net amount of heat to the first compartment is clear, concise, and exact. It means that the second compartment transfers more heat to the first compartment than the second compartment receives from the first compartment, as taught in the specification and as consistent with the plain and ordinary meaning of the word net. Accordingly, the rejection should be withdrawn.

35 U.S.C. §103(a) Rejection – Long in view of Heung

The Examiner has rejected claims 30, 34-35, 37-43, 56-58 and 60-64 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,702,491 issued to Long et al. (hereinafter referred to as "Long") in view of U.S. Patent No. 6,267,229 issued to Heung (hereinafter "Heung"). These rejected claims have been cancelled without prejudice to their subsequent reinstatement. Without admitting that Long and Heung should be combined, the Applicant respectfully submits that the present claims are allowable over any combination of Long and Heung.

Claim 65 recites an apparatus comprising "*a first compartment including an endothermic hydrogen generator; a second compartment including an exothermic hydrogen generator, the second compartment to transfer a net amount of heat to the first compartment; and a fuel cell coupled to the generators to receive hydrogen and to generate electrical power*". Any combination of Long and Heung does not teach or suggest an apparatus including a second compartment to transfer a net amount of heat to a first compartment.

The Examiner has stated that "*it would have been obvious to one skilled in the art at the time the invention was made to incorporate the specific compartments of Heung in*

the hydrogen generating apparatus of Long et al because Heung teaches that divided chambers (the specific compartments) allows to hold hydrogen storage medium in separate cells so as to provide a heat transferring surface which delivers heat to or removes heat from the solid storage medium and preventing the storage medium from migrating into a different generating apparatus area" (see last paragraph on page 9 of Office Action).

However, Applicant respectfully submits that even if Long and Heung are combined as proposed, which does not even seem appropriate, the primary chemical hydride of Long would be included in each of the partitioned chambers or specific compartments of Heung. There is no teaching or suggestion in either reference to use different hydrogen generating materials in different compartments. Since the same primary chemical hydride would be included in each of the chambers, there would be no transfer of a net amount of heat between chambers. The exchange of heat between chambers would be reciprocal and would therefore cancel out.

For at least these reasons, any combination of Heung and Long does not teach or suggest the claimed apparatus. Accordingly, claim 65 and its dependent claims are believed to be allowable over any combination of Long and Heung. Independent claim 85 and its dependent claims are also believed to be allowable.

35 U.S.C. §103(a) Rejection – Heung in view of Long

The Examiner has rejected claims 30, 34-35, 37-43, 56-58 and 60-64 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,267,229 issued to Heung ("Heung") in view of U.S. Patent No. 5,702,491 issued to Long et al. ("Long"). Without admitting the appropriateness of combining Heung and Long, the Applicant respectfully submits that the present claims are allowable over any combination of Heung and Long.

Any combination of Heung and Long does not teach or suggest an apparatus including a second compartment to transfer a net amount of heat to a first compartment. The discussion above is pertinent to this point.

Accordingly, claim 65 and its dependent claims are believed to be allowable over any combination of Long and Heung. Independent claim 85 and its dependent claims are also believed to be allowable.

Conclusion

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance. Applicant respectfully requests that the rejections be withdrawn and the claims be allowed at the earliest possible date.

Request For Telephone Interview

The Examiner is invited to call Brent E. Vecchia at (303) 740-1980 if there remains any issue with allowance of the case.

Request For An Extension Of Time

The Applicant respectfully petitions for an extension of time to respond to the outstanding Office Action pursuant to 37 C.F.R. § 1.136(a) should one be necessary. Please charge our Deposit Account No. 02-2666 to cover the necessary fee under 37 C.F.R. § 1.17 for such an extension.

Charge Our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Date: 11-5-04

Brent E. Vecchia
Reg. No. 48,011

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025-1030
(303) 740-1980